STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 137507

TO: Janet Epps-Ford **Location: REM/2C05/2C18** **Art Unit: 1635** **Thursday, November 18, 2004** **Case Serial Number: 09/591185**	**From: Alex Waclawiw** **Location: Biotech-Chem Library** **Rem 1A71** **Phone: 272-2534** **Alexandra.waclawiw@uspto.gov**

Search Notes

Examiner Epps-Ford,

The compound in Claim 32 is not structurally searchable. I used controlled vocabulary to search the claims.

Alex Wacalwiw

STIC-Biotech/ChemLib 137907

From: Epps-Ford, Janet
Sent: Tuesday, November 09, 2004 3:43 PM
To: STIC-Biotech/ChemLib
Subject: 09/591,185, Please search the following structure.

See attached claim 1 of application 09/591,185

Thanks,
Janet L. Epps-Ford, Ph.D.
Art Unit 1635
Mailbox: Remsen 2C18
Office: Remsen 2C05
Phone: 571-272-0757
Fax: 571-273-0757

DNP 12

Q-38

Point of Contact:
Alexandra Waclawiw
Technical Info. Specialist
CM1 6A02 Tel: 308-4491

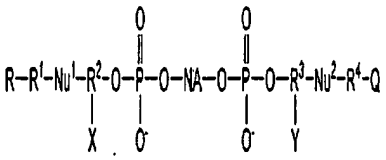
11/9/04

P.U. 11-18-04
S.O 11-18-04

Listing of Claims:

1-31. (Canceled)

32. (Previously Presented) A compound having the formula



wherein,

NA is a nucleic acid chain comprising nucleic acid monomers selected from the group consisting of natural nucleic acids, modified nucleic acids and combinations thereof;

R^1, R^2, R^3 and R^4 are linker moieties independently selected from the group consisting of substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

Nu^1 and Nu^2 are members independently selected from the group consisting of nucleotide residues and nucleoside residues;

R is a molecular energy transfer donor;

Q is a molecular energy acceptor; and

X and Y are the same or different and are non-nucleic acid stabilizing moieties that interact to bring R and Q into operative proximity, thereby enabling transfer of energy from R to Q.

33. (Previously Presented) The compound according to claim 32, wherein said molecular energy transfer donor is a fluorophore.

34. (Previously Presented) The compound according to claim 32, wherein said molecular energy acceptor is a fluorescence quencher.

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=> d his

     (FILE 'HOME' ENTERED AT 09:25:37 ON 18 NOV 2004)

     FILE 'HCAPLUS' ENTERED AT 09:25:44 ON 18 NOV 2004
                E COOK R/AU
L1           141 S E3 OR E26-27
L2             1 S L1 AND PROBE#
L3             1 S FLUORES? AND L1
L4             1 S ENERGY TRANSFER AND L1
                 SELECT RN L4 1

     FILE 'REGISTRY' ENTERED AT 09:28:38 ON 18 NOV 2004
L5             5 S E1-5
                 E FLUOROPHOR/CN

     FILE 'CAPLUS' ENTERED AT 09:30:55 ON 18 NOV 2004

     FILE 'HCAPLUS' ENTERED AT 09:30:57 ON 18 NOV 2004
                E ENERGY TRANSFER/CT
                E E3+AKK
                E E3+LL
                E E3+ALL
L6             0 S ENERTY TRANSFER (L) RESONANCE
L7          3233 S ENERGY TRANSFER (L) RESONANCE
L8          2005 S L7 (L) FLUORES?
L9        532393 S NUCLEIC ACID# OR DNA OR OLIGONUCLEOTID?
L10          708 S L9 AND L8
L11       520288 S NUCLEIC ACID# OR DNA OR OLIGONUCLEOTID?/CT
L12          377 S L11 (L) L8
L13        58374 S QUENCH?
L14           35 S L12 AND L13
L15         8176 S QUENCH?/CT
L16            1 S L15 AND L10
L17        12436 S FLUORESCENCE QUENCHING
L18           75 S L17 AND L11 AND L8
L19           44 S L18 AND PROBE#
L20           30 S L19 NOT L14
L21        10612 S FLUORESCENCE QUENCHING/CT
L22           70 S L21 AND L8 AND L11
L23         1186 S  FLUORESCENCE RESONANCE ENERGY TRANSFER/CT
L24          521 S L23 AND  L11
L25           61 S L24 AND L21
L26          207 S L23 (L) L11
L27           18 S L26 AND L21
L28           37 S L25 AND PROBE#
L29           29 S L28 NOT L27
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=> fil hcplus
'HCPLUS' IS NOT A VALID FILE NAME
SESSION CONTINUES IN FILE 'HCAPLUS'

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 09:49:58 ON 18 NOV 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 18 Nov 2004  VOL 141 ISS 21
FILE LAST UPDATED: 17 Nov 2004  (20041117/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d que l27
L11      520288 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NUCLEIC ACID#/OBI OR DNA/OBI
                OR OLIGONUCLEOTID?/CT
L21       10612 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FLUORESCENCE QUENCHING/CT
L23        1186 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FLUORESCENCE RESONANCE ENERGY
                TRANSFER/CT
L26         207 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 (L) L11
L27          18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26 AND L21


=> d que l29
L11      520288 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NUCLEIC ACID#/OBI OR DNA/OBI
                OR OLIGONUCLEOTID?/CT
L21       10612 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FLUORESCENCE QUENCHING/CT
L23        1186 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FLUORESCENCE RESONANCE ENERGY
                TRANSFER/CT
L24         521 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND  L11
L25          61 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND L21
L26         207 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 (L) L11
L27          18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26 AND L21
L28          37 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND PROBE#/OBI
L29          29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 NOT L27


=> d .ca  l27 1-18; d ibib ab l29 1-29

L27  ANSWER 1 OF 18  HCAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         2004:756897  HCAPLUS
DOCUMENT NUMBER:          141:256931
TITLE:                    Lab-on-a-chip system for analyzing nucleic acid
```

INVENTOR(S): Tao, Shenge; Cheng, Jing; Max, Xumei; Zhou, Yuxiang
PATENT ASSIGNEE(S): Tsinghua University, Peop. Rep. China; Capital Biochip Company, Ltd.; Zhang, Qiong
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004079002	A1	20040916	WO 2003-CN328	20030506

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: CN 2003-105108 A 20030303

AB This invention relates generally to the field of nucleic acid detection. In particular, the invention provides a lab-on-chip system for analyzing a nucleic acid, which system comprises, inter alia, controllably closed space, and a target nucleic acid can be prepared and/or amplified, and hybridized to a nucleic acid probe, and the hybridization signal can be acquired if desirable, in the controllably closed space without any material exchange between the controllably closed space and the outside environment. Methods for analyzing a nucleic acid using the lab-on-chip system is also provided.

IC ICM C12Q001-68
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3
IT **Fluorescence quenching**
(by Dacyl, Black Hole-1, Black Hole-2 and gold particle; lab-on-a-chip system for analyzing nucleic acid)
IT Buffers
Ceramics
Crosslinking
Fluorescence
Fluorescence resonance energy transfer
Hepatitis B virus
Instrumentation
Lab-on-a-chip
Luminescent substances
NASBA (nucleic acid sequence-based amplification)
Nucleic acid hybridization
PCR (polymerase chain reaction)
Prosthetic materials and Prosthetics
Thermal conductivity
Thermal cycling
UV radiation
(lab-on-a-chip system for analyzing **nucleic acid**)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:718694 HCAPLUS
DOCUMENT NUMBER: 141:237698
TITLE: Methods for nucleic acid sequencing
INVENTOR(S): Hoser, Mark J.
PATENT ASSIGNEE(S): UK
SOURCE: PCT Int. Appl., 87 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004074503	A2	20040902	WO 2004-GB709	20040220

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

GB 2003-3964	A	20030221
GB 2003-5525	A	20030311
GB 2003-6119	A	20030318
GB 2003-7515	A	20030401
GB 2003-10294	A	20030503
GB 2003-13689	A	20030613
GB 2003-20157	A	20030828
GB 2003-22245	A	20030923
GB 2003-25657	A	20031104
GB 2003-29053	A	20031216

AB The present invention relates to nucleic acid sequencing methods, kits and reagents, and more particularly to methods of sequencing nucleic acid which employ a nucleic acid processing enzyme and one or more nucleotide analogs that are capable of binding to the active site of the enzyme and to complementary bases in the nucleic acid mol. being sequenced, but which are non-incorporable or inhibitors of the nucleic acid processing enzyme. In further aspects, the present invention relates to conjugates which comprise a deoxyribonucleotide triphosphates (DNTPs) or an analog thereof linked to an intercalating dye. Limitations of FRET based sequencing methods can be overcome by development of FRET and fluorescent quenched based technol. which does not rely on the incorporation of labeled bases into the growing oligonucleotide chain. Thus, the platform of this invention is based on the utilization of nucleotide analogs which enter the active site of the polymerase when a specific base on the DNA template is about to be copied, but are not incorporated into the new strand which continues to be synthesized from natural nucleotides.

IC ICM C12Q
CC 3-1 (Biochemical Genetics)
IT DNA sequence analysis
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorescent substances

Genotyping (method)
Polarized fluorescence
Quantum dot devices
Raman spectra
SERS (Raman scattering)
Surface plasmon resonance
(methods for **nucleic acid** sequencing)

L27 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:570467 HCAPLUS
DOCUMENT NUMBER: 141:119302
TITLE: Visual detection assays for RNase using nucleic acid substrates with RNase-cleavable domain flanked by a fluorescence reporter group and a dark fluorescence quencher
INVENTOR(S): Walder, Joseph Alan; Behlke, Mark Aaron; Devor, Eric Jeffrey; Huang, Lingyan
PATENT ASSIGNEE(S): Integrated DNA Technologies, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 38 pp., Division of U.S. Ser. No. 968,733.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 2004137479	A1	20040715	US 2003-694480		20031027
US 6773885	B1	20040810	US 2001-968733		20011001
PRIORITY APPLN. INFO.:			US 2000-236640P	P	20000929
			US 2001-968733	A3	20011001

AB The present invention relates to methods for detecting the presence of RNase enzymes, more specifically to methods that provide for a visual detection assay. The methods entail contacting a test sample suspected of containing RNase activity with a substrate containing a RNase-sensitive internucleotide linkage flanked directly or indirectly by a fluorescence reporter group and a dark quencher, such that if a RNase activity is present in the sample, the RNase-sensitive internucleotide linkage is cleaved and the fluorescence reporter group emits a visually detectable signal. The present invention further provides novel nucleic acid compns. used as substrates for such assays and encompasses kits for performing the methods of the invention. The most preferred composition for a single substrate is 5'-FAM-AauggcA-QSY-7-3', where FAM is 6-carboxy-fluorescein and QSY-7 is a diarylrhodamine deriv from Mol. Probes, A is 2'-O-methyladenosine, and 'a', 'c', 'u', and 'g', are the ribonucleotide bases adenosine, cytosine, uridine, and guanosine. The assay is highly sensitive, highly specific, capable of detecting a broad spectrum of RNase enzymes, employs reagents that can be manufactured using com. reagents, is rapid and easy to perform, does not use any hazardous reagents, and can be performed without any specialized equipment. The visual assay is sensitive to 10 pg/mL RNase A, a level that is suitable for use as a quality control assay and comparable to the sensitivity of existing com. assays which require use of a fluorometer for detection.

IC ICM C12Q001-68
ICS C07H021-04
NCL 435006000; 534727000; 536024300
CC 7-1 (Enzymes)
IT **Fluorescence quenching**
Fluorescence resonance energy transfer

Fluorescent indicators
Test kits
(visual detection assays for RNase using **nucleic acid** substrates with RNase-cleavable domain flanked by a fluorescence reporter group and a dark fluorescence quencher)

L27 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:402743 HCAPLUS
DOCUMENT NUMBER: 140:387015
TITLE: Asynchronous thermal cycling protocol for nucleic acid amplification
INVENTOR(S): Chen, Caifu; Egholm, Michael; Haff, Lawrence A.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 55 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003207266	A1	20031106	US 2001-875211	20010605
CA 2412413	AA	20011213	CA 2001-2412413	20010606
WO 2001094638	A2	20011213	WO 2001-US18464	20010606
WO 2001094638	A3	20030710		
WO 2001094638	C1	20020411		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001068235	A5	20011217	AU 2001-68235	20010606
EP 1368489	A2	20031210	EP 2001-946152	20010606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004509613	T2	20040402	JP 2002-502178	20010606

PRIORITY APPLN. INFO.:	US 2000-209883P	P	20000606
	US 2001-875211	A	20010605
	WO 2001-US18464	W	20010606

OTHER SOURCE(S): MARPAT 140:387015

AB An asynchronous thermal cycling protocol for nucleic acid amplification uses two primers with thermal melting temps. different by about 10-30°. After the higher melting primer has annealed and polymerase-mediated extension, the uncopied, single-stranded target sequence may be hybridized and detected by a probe. DNA probes may be cleaved by the exonuclease activity of a polymerase. The probe may be a non-cleaving analog such as PNA. When a probe is labeled with a reporter dye and a quencher selected to undergo energy transfer, e.g. FRET, fluorescence from the reporter dye may be effectively quenched when the probe is unbound. Upon hybridization of the probe to complementary target or upon cleavage while bound to target, the reporter dye is no longer quenched, resulting in a detectable amount of fluorescence. The second, lower-melting primer may be annealed and extended to generate a double-stranded nucleic acid. Amplification may be monitored in real

time, including each cycle, or at the end point. The asynchronous PCR thermal cycling protocol can generate a preponderance of the PCR amplicon in single-stranded form by repetition at the end of the protocol of annealing and extension of the higher melting primer.

IC ICM C12Q001-68
ICS C07H021-04; C12P019-34
NCL 435006000; 435091100; 536024300
CC 3-1 (Biochemical Genetics)
IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Fluorescent dyes
Nucleic acid amplification (method)
PCR (polymerase chain reaction)
Thermal cycling
(asynchronous thermal cycling protocol for **nucleic acid** amplification)

L27 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:20858 HCAPLUS
DOCUMENT NUMBER: 140:88681
TITLE: Fluorescence quenching-based quantitative real-time PCR detection of nucleic acid using labeled probes
INVENTOR(S): Kurata, Shinya; Kamagata, Yoichi; Sekiguchi, Yuji
PATENT ASSIGNEE(S): Kankyo Engineering Co., Ltd., Japan; National Institute of Advanced Industrial Science and Technology
SOURCE: PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004003199	A1	20040108	WO 2003-JP8311	20030630
W: CA, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
JP 2004081214	A2	20040318	JP 2003-187634	20030630
PRIORITY APPLN. INFO.:			JP 2002-192562 A	20020701

AB A novel method of assaying a nucleic acid whereby a specific gene (hereinafter referred to as the target gene) in such a sample containing at least one target sequence can be accurately and quickly detected, quantified, and obtained by the real-time quant. PCR, is disclosed. This method comprises amplifying nucleic acids using a consensus sequence for a known nucleic acid species having the same function, and searching for nucleic acid which is novel or has the same function from among the thus amplified nucleic acids and acquiring such novel and useful nucleic acid therefrom. Electrophoresis, HPLC, sequence anal., melting temperature measurement, and polymorphism anal., are used. Application of the method to FRET-based detection of 16S rRNA gene of E. coli is described.

IC ICM C12N015-09
ICS C12Q001-68; G01N033-50
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
IT **Fluorescence quenching**
Nucleic acid amplification (method)
Nucleic acid hybridization
PCR (polymerase chain reaction)

(fluorescence quenching-based quant. real-time PCR detection of nucleic acid using labeled probes)

IT **Fluorescence resonance energy transfer**
(probes labeled with indicators causing; fluorescence quenching-based quant. real-time PCR detection of **nucleic acid** using labeled probes)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:951222 HCAPLUS
DOCUMENT NUMBER: 140:13694
TITLE: Nucleic acid detection by hybridization of FRET pair labeled and target sequence specific probes
INVENTOR(S): Inose, Ken
PATENT ASSIGNEE(S): Arkray, Inc., Japan
SOURCE: PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003100095	A1	20031204	WO 2003-JP5773	20030508

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2002-132995 A 20020508

AB A method and kit for detecting nucleic acid by hybridization of a pair of probes, one hybridizing to the target sequence and other forming a loop and labeled with fluorescent resonance energy transfer (FRET) causing donor and quencher pair, are disclosed. A target nucleic acid in a sample is detected by the following steps: (a) mixing the sample with a first probe, comprising a specific region having a sequence complementary to the target sequence and a non-specific region having a sequence not complementary to the target sequence, and a second probe, comprising a first region complementary to part of the non-specific region of the first probe, a loop region having no sequence complementary to the first probe and a second sequence complementary to part of the specific region of the first probe, the loop region of which can form a loop when annealed with the first probe and labeled with a fluorescent labeling enabling the detection of the loop formed under conditions allowing the annealing of the first probe with the second probe and the first probe with the target sequence; and (b) detecting the loop formed by the first probe and the second probe. Detection of human amyrin gene sequence with a probe 1 having complementary sequence and probe 2 labeled with FITC and Texas Red, is described.

IC ICM C12Q001-68
ICS C12N015-09; G01N033-53; G01N033-533; G01N033-566
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9

IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Nucleic acid hybridization
(**nucleic acid** detection by hybridization of FRET pair labeled and target sequence specific probes)
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:856095 HCAPLUS
DOCUMENT NUMBER: 139:333983
TITLE: Fluorescence quenching-based quantitative real-time PCR detection of nucleic acid using labeled probes for target and internal standard
INVENTOR(S): Kurata, Shinya; Watanabe, Ichiro; Kanagawa, Takahiro; Kamagata, Yoichi
PATENT ASSIGNEE(S): Kankyo Engineering Co., Ltd., Japan; National Institute of Advanced Industrial Science and Technology
SOURCE: PCT Int. Appl., 153 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003089669	A1	20031030	WO 2003-JP5118	20030422
W: CA, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
JP 2004000203	A2	20040108	JP 2003-117140	20030422

PRIORITY APPLN. INFO.: JP 2002-119903 A 20020422

AB A novel method of assaying a nucleic acid whereby a specific gene (hereinafter referred to as the target gene) in such a sample containing at least one target nucleic acid can be accurately and quickly detected and quantified by the real-time quant. PCR, is disclosed. This method comprises adding a nucleic acid (an internal standard nucleic acid) having a partial mutation in the base sequence of the target nucleic acid at a known concentration to an assay system, further adding a target nucleic acid probe specifically hybridizable with the target nucleic acid and an internal standard nucleic acid probe specifically hybridizable with the internal standard nucleic acid to the assay system, performing PCR, simultaneously assaying the target nucleic acid and the internal standard nucleic acid, and determining the concentration of the target nucleic acid from the concentration of the internal nucleic acid thus measured. Methods of data anal. by FISH, LCR, SD, or TAS, and computer programs for it are also claimed. Reagent kits and DNA chips are also claimed. Application of the method to FRET-based detection of nec1 gene from soil is described.

IC ICM C12Q001-68
ICS C12N015-00; C12M001-00; G01N033-566; G01N033-58; G01N033-53
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
IT **Fluorescence quenching**
Fluorescence resonance energy transfer
(probes labeled with indicators causing; fluorescence quenching-based quant. real-time PCR detection of **nucleic acid**

using labeled probes for target and internal standard)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:796985 HCAPLUS
DOCUMENT NUMBER: 139:287284
TITLE: Solution phase hybridization-based methods for detecting and quantitating nucleic acid analytes
INVENTOR(S): Stephan, Jean-Philippe F.; Tsai, Siao Ping; Wong, Wai Lee Tan; Billeci, Todd
PATENT ASSIGNEE(S): Genentech, Inc., USA
SOURCE: PCT Int. Appl., 94 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003083440	A2	20031009	WO 2003-US9726	20030328
WO 2003083440	A3	20040902		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004009506	A1	20040115	US 2003-401520	20030328
PRIORITY APPLN. INFO.:			US 2002-368669P	P 20020329

AB The present invention provides novel solution phase hybridization-based methods for detecting and quantitating nucleic acid analytes. Methods comprising use of novel capture polymers and/or signaling systems are provided. Use of these novel capture polymers and/or signaling systems provides significant improvements in signal to noise ratio, specificity, sensitivity and ease of development and use as compared to existing solution phase nucleic acid detection and quantitation methods. The invention further provides compns., kits and articles of manufacture for practicing methods of the present invention.

IC ICM G01N
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
IT Animal tissue culture
Blood
Blood serum
Cerebrospinal fluid
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorescent dyes
Human
Lab-on-a-chip
Labels
Microarray technology
Mus
Nucleic acid hybridization

Organ, animal
Semen
Sputum
Urine
(solution phase hybridization-based methods for detecting and quantitating **nucleic acid** analytes)

L27 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:610638 HCAPLUS
DOCUMENT NUMBER: 139:174795
TITLE: Methods for detecting coregulators of nucleic acid binding factors via binding of the factors to half-site nucleic acid elements
INVENTOR(S): Heyduk, Tomasz
PATENT ASSIGNEE(S): Saint Louis University, USA
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003064657	A1	20030807	WO 2003-US2157	20030123
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003049625	A1	20030313	US 2001-928385	20010813
US 6544746	B2	20030408		
EP 1476557	A1	20041117	EP 2003-703998	20030123
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				

PRIORITY APPLN. INFO.:		
US 2001-928385	A	20010813
US 2002-62064	A2	20020131
WO 2003-US2157	W	20030123

AB The invention provides biosensors and methods to determine the activity of any and all nucleic acid binding factors, proteins, cellular events, nucleic acid binding protein coregulators, or fragments thereof, based upon the stabilization of the interaction of two nucleic acid components, which together comprise a complete nucleic acid binding element, by the binding of a nucleic acid binding factor. Preferably, a fluorescence donor is attached to a nucleic acid comprising one portion or component of a complete nucleic acid binding element and a fluorescence acceptor is attached to a nucleic acid comprising the other portion or component of the same complete binding element. Alternatively, a solid substrate is attached to a nucleic acid comprising one portion of a binding element and a detectable label is attached to a nucleic acid comprising the other portion of the same binding element. Binding of a nucleic acid binding factor to the nucleic acid components affects a change in luminescence or the association of the detectable label with the solid substrate. These biosensors and methods may also be used to detect mediating nucleic acid binding factor coregulators, post-translational modifications and cellular

events, to diagnose diseases and/or screen for drugs or other ligands that mediate the activity of nucleic acid binding factors. An example of the invention describes detection of Escherichia coli cAMP receptor protein (CAP) using a synthetic consensus CAP DNA-binding site. Quenching of fluorescence was observed when the CAP protein was added to a fluorescein (fluorescent donor)-labeled CAP2/CAP3 oligonucleotide duplex in the presence of dabcyl (fluorescent acceptor)-labeled CAP1/CAP4 oligonucleotide duplex. Fluorescence quenching required cAMP, which is necessary for sequence-specific binding of CAP protein, and could be competed with unlabeled oligonucleotides. Similar expts. were performed using E. coli lac and trp repressor proteins and recombinant human p53 protein.

IC ICM C12N015-63
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
IT Biosensors
DNA microarray technology
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorometry
Molecular association
Polarized fluorescence
(methods for detecting coregulators of **nucleic acid** binding factors via binding of the factors to half-site **nucleic acid** elements)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:491419 HCAPLUS
DOCUMENT NUMBER: 139:48135
TITLE: Methods and kits for detection of nucleic acids by capture using multi-subunit probes
INVENTOR(S): Sorge, Joseph A.
PATENT ASSIGNEE(S): Stratagene, USA
SOURCE: PCT Int. Appl., 109 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2003052116	A2	20030626	WO 2002-US22721		20020717
WO 2003052116	A3	20031211			
WO 2003052116	C2	20040115			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
US 2003148310	A1	20030807	US 2002-196842		20020717
PRIORITY APPLN. INFO.:			US 2001-306090P	P	20010717
			US 2001-307238P	P	20010723

US 2001-313921P P 20010821

AB The invention claims methods for generating a signal indicative of a target nucleic acid sequence, comprising forming a complex by incubating a sample comprising a target nucleic acid sequence with a probe comprising a first and second subunit, and a binding moiety, and dissociating the first and second subunit to release the first subunit and generate a signal. The invention also relates to a method of generating a signal indicative of the presence of a target nucleic acid sequence in a sample, comprising forming a complex by incubating a target nucleic acid sequence, an upstream primer and a probe comprising a first and second subunit, and a binding moiety. The primer is extended with a nucleic acid polymerase to displace a portion of the first subunit from the target nucleic acid strand thereby dissociating the first subunit from the second subunit to release the first subunit and generate a signal. The invention specifically claims probes that are tagged, to provide a signal, and a pair of interactive signal-generating moieties such as a fluorescent substance and a quencher substance. Probes of the invention may be labeled oligonucleotides with binding moieties consisting of sequences complementary to target nucleic acid sequences. Probes may also contain secondary structure such that the secondary structure may change upon binding or release of the probe and the target nucleic acid. In one example a labeled probe has two subunits comprising a mol. beacon probe and a lac repressor protein tag such that when the probe hybridizes to the target nucleic acid there is a change in secondary structure/dissociation and the lac repressor protein binds specifically to a capture DNA element on a solid support.

IC ICM C12Q

CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9

IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Fluorescent indicators
Nucleic acid hybridization
PCR (polymerase chain reaction)
Stem-loop structure
Test kits
(methods and kits for detection of **nucleic acids** by capture using multi-subunit probes)

L27 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:441453 HCAPLUS

DOCUMENT NUMBER: 139:204910

TITLE: Photodestruction Intermediates Probed by an Adjacent Reporter Molecule

AUTHOR(S): Ha, Taekjip; Xu, Jian

CORPORATE SOURCE: Department of Physics, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA

SOURCE: Physical Review Letters (2003), 90(22), 223002/1-223002/4
CODEN: PRLTAO; ISSN: 0031-9007

PUBLISHER: American Physical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors used a fluorescence resonance energy transfer donor mol. to probe the multiple intermediates in the photoinduced destruction of an acceptor mol. These intermediates are nonemitting but are still able to quench the fluorescence of the donor at a distance scale shorter than conventional fluorescence resonance energy transfer, suggesting novel biophys. applications.

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)
Section cross-reference(s): 9, 73
IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Photoinduced energy transfer
(intramol.; fluorescence resonance energy transfer from donor to acceptor attached to partial duplex **DNA** to probe multiple intermediates in photodestruction of acceptor)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:289426 HCAPLUS
DOCUMENT NUMBER: 140:55814
TITLE: Molecular beacons for detecting DNA binding proteins: mechanism of action
AUTHOR(S): Heyduk, Ewa; Knoll, Eric; Heyduk, Tomasz
CORPORATE SOURCE: Edward A. Doisy Department of Biochemistry and Molecular Biology, St. Louis University Medical School, St. Louis, MO, 63104, USA
SOURCE: Analytical Biochemistry (2003), 316(1), 1-10
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Elsevier Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB New methodol. for detecting sequence-specific DNA binding proteins has been recently developed. The central feature of this assay is protein-dependent association of two DNA fragments, each containing about half of a DNA sequence-defining the protein binding site. In this report we propose a phys. model explaining the functioning of the assay. The model involves two linked equilibrium: association between the two DNA fragments and binding of the protein exclusively to the complex between the two DNA fragments. Equilibrium and kinetic expts. provided evidence supporting the proposed model and showed that the model was sufficient to describe the behavior of the assay under a variety of conditions. Kinetic data identified the association between the two DNA half-sites as the rate-limiting step of the assay. Theor. simulations based on the proposed model were used to investigate parameters important for the maximal sensitivity of the assay. Phys. understanding of the assay will provide means for rational design of the assay for a variety of target proteins.
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3, 6
IT Affinity
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorometry
Ionic strength
Molecular association
Reaction kinetics
Simulation and Modeling, physicochemical
(mol. beacons for detecting **DNA** binding proteins and mechanism of action)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:203282 HCAPLUS
DOCUMENT NUMBER: 138:234446
TITLE: Rapid and sensitive proximity-based assay for the

detection and quantification of DNA binding proteins
INVENTOR(S): Heyduk, Tomasz
PATENT ASSIGNEE(S): Saint Louis University, USA
SOURCE: U.S. Pat. Appl. Publ., 43 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003049625	A1	20030313	US 2001-928385	20010813
US 6544746	B2	20030408		
WO 2003078449	A2	20030925	WO 2002-US24822	20020802
WO 2003078449	A3	20040910		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
WO 2003064657	A1	20030807	WO 2003-US2157	20030123
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2001-928385 A 20010813
US 2002-62064 A2 20020131

AB Methods to determine the activity of any and all DNA binding factors, proteins or fragments thereof based upon the detection of a change in a luminescence or fluorescence signal are provided. Preferably, a fluorescence donor is attached to a nucleic acid comprising one portion of a DNA binding element and a fluorescence acceptor is attached to a nucleic acid comprising the other portion of the same binding element. Alternatively, a microsphere bead is attached to a nucleic acid comprising one portion of a binding element and a luminescent moiety or fluorochrome is attached to a nucleic acid comprising the other portion of the same binding element. Binding of a DNA binding factor to the nucleic acid components affects a change in luminescence. These methods may also be used to detect mediating analytes, to diagnose diseases and/or screen for drugs that mediate the activity of DNA binding factors.

IC ICM C12Q001-68
NCL 435006000
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3, 14
IT Biological transport
Cell
DNA sequences
Escherichia coli

Fluorescence quenching
Fluorescence resonance energy transfer
Fluorometry
High throughput screening
Human
Microarray technology
Microspheres
Neoplasm
Signal transduction, biological
(proximity-based assay for detection and quantification of **DNA** binding proteins)

L27 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:133482 HCAPLUS
DOCUMENT NUMBER: 138:182010
TITLE: Nucleic acid sensor molecules comprising target modulation domains and catalytic domains with an optical signal generating unit
INVENTOR(S): Stanton, Martin; Epstein, David; Hamaguchi, Nobuko; Kurz, Markus; Keefe, Tony; Wilson, Charles; Grate, Dilara; Marshall, Kristin A.; McCauley, Thomas; Kurz, Jeffrey
PATENT ASSIGNEE(S): Archemix Corp., USA
SOURCE: PCT Int. Appl., 424 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2003014375	A2	20030220	WO 2002-US25319		20020809
WO 2003014375	A3	20031016			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
US 2003087239	A1	20030508	US 2001-952680		20010913
PRIORITY APPLN. INFO.:			US 2001-311378P	P	20010809
			US 2001-313932P	P	20010821
			US 2001-952680	A2	20010913
			US 2001-338186P	P	20011113
			US 2002-349959P	P	20020118
			US 2002-364486P	P	20020313
			US 2002-367991P	P	20020325
			US 2002-369887P	P	20020404
			US 2002-376744P	P	20020501
			US 2002-385097P	P	20020531
			US 2000-232454P	P	20000913

AB Methods for engineering a nucleic acid sensor mol. (also known as allosteric ribozymes, aptazymes, and the like) are provided. Biosensors comprise a plurality of nucleic acid sensor mols. labeled with a first signaling moiety and a second signaling moiety. The nucleic acid sensor

mols. recognizes target mols. which do not naturally bind to DNA. Binding of a target mol. to the sensor mols. triggers a change in the proximity of the signaling moieties which leads to a change in the optical properties of the nucleic acid sensor mols. on the biosensor. The nucleic acid sensor mols. are developed through a combination of engineering and selection methods that are useful for identifying nucleic acid sensor mols. against a wide variety of target mols. including protein (including specific post-translationally modified forms of proteins), peptides, nucleic acids, oligosaccharides, nucleotides, metabolites, drugs, toxins, biohazards, ions, carbohydrates, glycoproteins, hormones, receptors, antibodies, viruses, transition state analogs, cofactors, dyes, growth factors, nutrients, etc. The selection process identified novel sensor mols. through target modulation of the catalytic core of a ribozyme. Hence, in vitro selection is distinct from previously described for affinity-based aptamer selections (e.g., SELEX) in that selective pressure on the starting population of nucleic acid sensors results in mols. with enhanced catalytic properties, but not in enhanced binding properties. In one embodiment of the invention, nucleic acid sensors are based on cis-cleaving hammerhead ribozymes that have been designed to work as optical signaling mols. affixed to a solid support, and utilize fluorescence and FRET-based methods of signal generation and detection. The method is useful in diagnostic applications and drug optimization.

IC ICM C12Q

CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 1, 7, 9

IT Biosensors
Blood analysis
Drug screening
Drugs
Dyes
Fluorescence
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorescent indicators
High throughput screening
Ions
Isotope indicators
Nucleic acid hybridization
Nutrients
Surface plasmon resonance
Virus
(**nucleic acid** sensor mols. comprising target modulation domains and catalytic domains with an optical signal generating unit)

L27 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:954523 HCAPLUS
DOCUMENT NUMBER: 138:166125
TITLE: DNA-based photonic logic gates: AND, NAND, and INHIBIT
AUTHOR(S): Saghatelian, Alan; Voelcker, Nicolas H.; Guckian, Kevin M.; Lin, Victor S.-Y.; Ghadiri, M. Reza
CORPORATE SOURCE: Departments of Chemistry and Molecular Biology and the Skaggs Institute for Chemical Biology, The Scripps Research Institute, La Jolla, CA, 92037, USA
SOURCE: Journal of the American Chemical Society (2003), 125(2), 346-347
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Conventional microprocessors use elementary logic gates to perform complex computational tasks. Mimicking such computational processes using purely mol. systems has been limited in most cases by the lack of design generality or potential addressability of existing mol. logic gates. Herein we report that by employing the universal recognition properties of DNA simple photonic logic gates can be created that are capable of AND, NAND, and INHIBIT logic operations.

CC 9-16 (Biochemical Methods)
Section cross-reference(s): 3

IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Molecular electronics
(AND, NAND, and INHIBIT **DNA**-based photonic logic gates)

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:408834 HCAPLUS
DOCUMENT NUMBER: 137:2231
TITLE: Continuous assay for DNA cleavage with hairpin-forming oligonucleotide "break lights" probes application to enediynes, iron-dependent agents, and nucleases
INVENTOR(S): Thorson, Jon S.; Prudent, James
PATENT ASSIGNEE(S): Memorial Sloan-Kettering Cancer Center, USA
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2002042497	A2	20020530	WO 2001-US44331		20011127
WO 2002042497	A3	20030206			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2002039353	A5	20020603	AU 2002-39353		20011127
US 2002187484	A1	20021212	US 2001-993757		20011127
EP 1370681	A2	20031217	EP 2001-987104		20011127
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
JP 2004515229	T2	20040527	JP 2002-545199		20011127
PRIORITY APPLN. INFO.:			US 2000-253382P	P	20001127
			WO 2001-US44331	W	20011127

AB Modified hairpin-forming oligonucleotide to continuously assess nucleotide cleavage by enediynes and other nucleic acid cleavage agents are provided. These oligonucleotide probes, which are also referred to herein as "mol. break lights", are also useful for continuous assessment of protection of nucleotides from cleavage agents. In certain embodiments, the processes comprise: a. incubating the sample with a probe, the probe comprising: an oligonucleotide that forms a stem loop structure, a fluorophore, and a quencher, wherein the fluorophore and the quencher are positioned such

that the fluorophore fluoresces less when the probe is intact than when the probe is cleaved; b. measuring the level of fluorescence of the probe; and c. correlating amount of fluorescence with activity of the nucleic acid cleavage agent. The nucleic acid cleavage agent may be, e.g., an enzyme, such as a nuclease. Examples of nucleases the activity or presence of which may be assayed using the processes and probes of the present invention include exonucleases and endonucleases, such as restriction endonucleases. Other examples of nucleic acid cleavage agents the activity or presence may be assayed using the processes and probes of the present invention include small mols., and enediynes. Although extensive effort has been applied toward understanding the mechanism by which enediynes cleave DNA, a continuous assay for this phenomenon is still lacking. In fact, with the exception of assays for DNase, continuous assays for most DNA cleavage events are unavailable. This article describes the application of "mol. break lights" (a single-stranded oligonucleotide that adopts a stem-and-loop structure and carries a 5'-fluorescent moiety, a 3'-nonfluorescent quenching moiety, and an appropriate cleavage site within the stem) to develop the first continuous assay for cleavage of DNA by enediynes. Furthermore, the generality of this approach is demonstrated by using the described assay to directly compare the DNA cleavage by naturally occurring enediynes (calicheamicin and esperamicin), non-enediyne small mol. agents [bleomycin, methidiumpropyl-EDTA-Fe(II), and EDTA-Fe(II)], as well as the restriction endonuclease BamHI. Given the simplicity, speed, and sensitivity of this approach, the described methodol. could easily be extended to a high throughput format and become a new method of choice in modern drug discovery to screen for novel protein-based or small mol.-derived DNA cleavage agents. Mol. break light probe A was used to assay CalC inhibition of nucleotide cleavage by calicheamicin.

IC ICM C12Q001-68
CC 6-2 (General Biochemistry)
Section cross-reference(s): 9
IT **Fluorescence quenching**
Fluorescence resonance energy transfer
Test kits
(continuous assay for **DNA** cleavage with hairpin-forming oligonucleotide "break lights" probes application to enediynes, iron-dependent agents, and nucleases)

L27 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:140554 HCAPLUS
DOCUMENT NUMBER: 136:243805
TITLE: Fluorescence resonance energy transfer (FRET) and competing processes in donor-acceptor substituted DNA strands: a comparative study of ensemble and single-molecule data
AUTHOR(S): Dietrich, Anja; Buschmann, Volker; Muller, Christian; Sauer, Markus
CORPORATE SOURCE: Physikalisch-Chemisches Institut, Physikalisch-Chemisches Institut, Universitat Heidelberg, Heidelberg, 69120, Germany
SOURCE: Reviews in Molecular Biotechnology (2002), 82(3), 211-231
CODEN: RMBIFZ; ISSN: 1389-0352
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. We studied the fluorescence resonance energy transfer (FRET) efficiency of different donor-acceptor labeled model DNA systems in aqueous solution from ensemble measurements and at the single mol. level. The donor

dyes: tetramethylrhodamine (TMR); rhodamine 6G (R6G); and a carbocyanine dye (Cy3) were covalently attached to the 5'-end of a 40-mer model oligonucleotide. The acceptor dyes, a carbocyanine dye (Cy5), and a rhodamine derivative (JA133) were attached at modified thymidine bases in the complementary DNA strand with donoracceptor distances of 5, 15, 25 and 35 DNA-bases, resp. Anisotropy measurements demonstrate that none of the dyes can be observed as a free rotor; especially in the 5-bp constructs the dyes exhibit relatively high anisotropy values. Nevertheless, the dyes change their conformation with respect to the oligonucleotide on a slower time scale in the millisecond range. This results in a dynamic inhomogeneous distribution of donor/acceptor (D/A) distances and orientations. FRET efficiencies have been calculated from donor and acceptor fluorescence intensity as well as from time-resolved fluorescence measurements of the donor fluorescence decay. Dependent on the D/A pair and distance, addnl. strong fluorescence quenching of the donor is observed, which simulates lower FRET efficiencies at short distances and higher efficiencies at longer distances. On the other hand, spFRET measurements revealed subpopulations that exhibit the expected FRET efficiency, even at short D/A distances. In addition, the measured acceptor fluorescence intensities and lifetimes also partly show fluorescence quenching effects independent of the excitation wavelength, i.e. either directly excited or via FRET. These effects strongly depend on the D/A distance and the dyes used, resp. The obtained data demonstrate that besides dimerization at short D/A distances, an electron transfer process between the acceptor Cy5 and rhodamine donors has to be taken into account. To explain deviations from FRET theory even at larger D/A distances, we suggest that the π-stack of the DNA double helix mediates electron transfer from the donor to the acceptor, even over distances as long as 35 base pairs. Our data show that FRET expts. at the single mol. level are rather suited to resolve fluorescent subpopulations in heterogeneous mixture, information about strongly quenched subpopulations gets lost.

CC 9-0 (Biochemical Methods)

IT Dyes
Electron acceptors
Electron donors
Electron transfer
Electrostatic force
Ensembles
Fluorescence decay
Fluorescence quenching
Fluorescence resonance energy transfer
Molecular modeling
Molecular structure
Simulation and Modeling, physicochemical
(fluorescence resonance energy transfer (FRET) and competing processes in donor-acceptor substituted **DNA** strands)

REFERENCE COUNT: 80 THERE ARE 80 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:904568 HCAPLUS
DOCUMENT NUMBER: 136:33901
TITLE: Methods for monitoring protein- or nucleic acid-modifying enzyme activity
INVENTOR(S): Griffiths, Gary
PATENT ASSIGNEE(S): Cyclacel Limited, UK
SOURCE: PCT Int. Appl., 112 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001094614	A2	20011213	WO 2001-GB2502	20010607
WO 2001094614	A3	20020516		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002019002	A1	20020214	US 2001-877919	20010607
US 6808874	B2	20041026		
EP 1290215	A2	20030312	EP 2001-936660	20010607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2003162237	A1	20030828	US 2002-308967	20021203

PRIORITY APPLN. INFO.:		
GB 2000-13888	A	20000607
US 2000-211313P	P	20000613
WO 2001-GB2502	W	20010607

AB The invention relates to monitoring of enzyme activities, in particular, activities of enzymes which cause modification of proteins or nucleic acids. We describe a method for monitoring the activity of an enzyme, the method comprising the steps of: providing a binding domain which includes a site for enzymic modification; providing a binding partner which binds to the binding domain in a manner which is dependent upon modification of the site. The binding domain is contacted with the enzyme; and binding of the binding domain to the binding partner is detected as an indication of the activity of the enzyme. One of the binding domain and binding partner comprises a polypeptide and the other of the binding domain and binding partner comprises a nucleic acid.

IC ICM C12Q001-00
CC 7-1 (Enzymes)
Section cross-reference(s): 1
IT Drug screening
Energy transfer
Fluorescence
Fluorescence quenching
Fluorescence resonance energy transfer
Fluorescent indicators
Methyl group
Molecular association
Phosphate group
(methods for monitoring protein- or **nucleic acid** -modifying enzyme activity)

L29 ANSWER 1 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:913393 HCAPLUS
DOCUMENT NUMBER: 139:393103
TITLE: Polyelectrolyte complex (e.g. zwitterionic polythiophenes) with a receptor (e.g. polynucleotide,

antibody etc.) for biosensor applications
INVENTOR(S): Inganaes, Olle; Asberg, Peter; Nilsson, Peter
PATENT ASSIGNEE(S): Swed.
SOURCE: PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003096016	A1	20031120	WO 2003-SE762	20030509

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: SE 2002-1468 A 20020513

AB The invention relates to a complex between a conjugated polyelectrolyte, and one or more receptor mols. specific for a target biomol. analyte, said polyelectrolyte and said receptor being non-covalently bound to each other, usable as a probe for biomol. interactions. It also relates to a method of determining selected properties of biomols. Thereby, a complex as above is exposed to a target biomol. analyte whereby the analyte and the receptor interact, and a change of a property of said polyelectrolyte in response to the interaction between the receptor and the analyte is detected. The detected change is used to determine said selected property of said biomol. A zwitterionic polythiophene derivative, poly(3-[(S)-5-amino-5-carboxyl-3-oxapentyl]-2,5-thiophenylene hydrochloride) (POWT), was mixed with a 20-mer DNA and used in fluorescent detection of single nucleotide polymorphism.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 2 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:875484 HCAPLUS
DOCUMENT NUMBER: 139:361233
TITLE: Bis-transition-metal-chelate-**probes**
INVENTOR(S): Ebright, Richard H.; Ebright, Yon W.
PATENT ASSIGNEE(S): Rutgers, the State of University of New Jersey, USA
SOURCE: PCT Int. Appl., 80 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003091689	A2	20031106	WO 2002-US36180	20021112

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,

PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2004096887	A1	20040520	US 2003-665227		20030917
PRIORITY APPLN. INFO.:			US 2002-367775P	P	20020328
			US 2002-410267P	P	20020913
			WO 2002-US36180	A2	20021112

OTHER SOURCE(S): MARPAT 139:361233

AB A probe for labeling a target material is provided including two transition-metal chelates and detectable group. The probe has the general structural formula (I) wherein: (a) Y and Y' are each a transition metal, (b) R1 and R1 are each independently CH(COO-), CH(COOH), or absent; (c) R2 and R2 are linkers each having a length of from about 3.0 to about 20 A; and (d) X is a detectable group. The linkers may be linear or branched, may contain aromatic moieties, and may optionally be further substituted. Methods of use of the probe in detecting and analyzing target materials of interest also are provided.

L29 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:863451 HCAPLUS
DOCUMENT NUMBER: 139:346757
TITLE: Real-time RT-PCR quantitative assay for sulfotransferase using FRET **probe** and primer pairs
INVENTOR(S): Nishimura, Masuhiro; Ueda, Nobuhiko; Naito, Shinsaku
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2003310278	A2	20031105	JP 2002-194436		20020703
PRIORITY APPLN. INFO.:			JP 2002-41629	A	20020219

AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of sulfotransferase mRNA, are disclosed. They target the regions of CHST2, SULT1B1, TPST1, SULT1A1, SULT1A2, and SULT1A3 genes. The probes are labeled with a pair of reporter chromophore (dye) and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with 6-Carboxyfluorescein (FAM) and at 3' end with TAMRA is described.

L29 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:737892 HCAPLUS
DOCUMENT NUMBER: 139:257733
TITLE: SNP analysis using FRET **probes** labeled with rare earth metal complex of fluorescent dye and quencher
INVENTOR(S): Matsumoto, Kazuko; Yuan, Jingli
PATENT ASSIGNEE(S): Japan
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003076615	A1	20030918	WO 2003-JP2775	20030310
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003325200	A2	20031118	JP 2003-61958	20030307
PRIORITY APPLN. INFO.:			JP 2002-63960 A	20020308
			JP 2003-61958 A	20030307

OTHER SOURCE(S): MARPAT 139:257733

AB A method and reagent for SNP anal. by the invader method with the use of a FRET probe having a luminescent dye and a quencher where the FRET probe is labeled with a fluorescent dye in complex with a rare earth element such as europium or terbium, are disclosed. Use of mol. beacon probes labeled with BPTA-Tb3+ and Dabsyl as fluorescent label and quencher, is described.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:696411 HCAPLUS
DOCUMENT NUMBER: 139:225435
TITLE: Fluorescence energy transfer-labeled oligonucleotides that include a 3'→5'-exonuclease resistant quencher domain for high-fidelity PCR amplification
INVENTOR(S): Chou, Quin; Spasic, Dragan
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 27 pp., Cont.-in-part of U.S. Ser. No. 87,229.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003165920	A1	20030904	US 2002-222943	20020815
US 2003162184	A1	20030828	US 2002-87229	20020227
US 6818420	B2	20041116		
WO 2003072051	A2	20030904	WO 2003-US5641	20030225
WO 2003072051	A3	20040108		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF,				

BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: US 2002-87229 A2 20020227
US 2002-222943 A 20020815

AB Methods and compns. are provided for detecting a primer extension product in a reaction mixture In the subject methods, a primer extension reaction is conducted in the presence of a polymerase having 3'→5'-exonuclease activity and at least one fluorescence energy transfer (FET)-labeled oligonucleotide probe that includes a 3'→5'-exonuclease resistant quencher domain. A nucleic acid intercalator, such as polycyclic compds. with aromatic ring(s) and acridines, is included to increase resistance to exonuclease activity, and a minor groove binder, such as netropsin or distamycin A, provides increased stability to the hybrid formed by the FET-labeled oligonucleotide. Dark quencher structures are exemplified by a substituted 4-(phenyldiazenyl)phenylamine structure. The subject invention finds use in a variety of different applications, and are particularly suited for use in high-fidelity PCR based reactions, including SNP detection applications, allelic variation detection applications, and the like.

L29 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:663298 HCAPLUS
DOCUMENT NUMBER: 139:192451
TITLE: Real-time RT-PCR and FRET-based method of detecting and quantifying human cytochrome P450 isoform expression using **probes** and primers
INVENTOR(S): Nishimura, Masuhiro; Ueda, Nobuhiko; Naito, Shinsaku
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003235580	A2	20030826	JP 2002-41670	20020219

PRIORITY APPLN. INFO.: JP 2002-41670 20020219

AB A method and kit for detecting and quantifying expression of human cytochrome P 450 isoforms, which comprises an oligonucleotide probe hybridizable with a specific region of a gene encoding each human P 450 cytochrome species (for example, the 859-884 region of CYP7A1 gene) and specific primer pairs; are disclosed. Probes are labeled with a fluorophore and a quencher, so that Taq polymerase 5'-3' endonuclease hydrolysis of the reporter causes increase in fluorescence that was suppressed by FRET (Fluorescence Resonance Energy Transfer). Probes labeled with FAM and TAMRA, and primer sets were used to detect expression of cytochrome P 450 genes in various tissues.

L29 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:616966 HCAPLUS
DOCUMENT NUMBER: 139:174796
TITLE: FRET detection of human liver function marker protein mRNAs using PCR primers and fluorescent dye pair labeled **probes**
INVENTOR(S): Nishimura, Masuhiro; Ueda, Nobuhiko; Naito, Shinsaku
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003225091	A2	20030812	JP 2002-28616	20020205

PRIORITY APPLN. INFO.: JP 2002-28616 20020205

AB Oligonucleotide probes and primers for measurement of mRNAs coding for proteins that are markers of human liver function, and a reagent kit containing a combination of them are disclosed. Those oligonucleotides hybridized to specific regions of the genes for albumin, GPC3 (glypican-3), and transferrin. TaqMan probes labeled with a pair of FRET (Fluorescence Resonance Energy Transfer) causing reporter and quencher dyes hybridize to cDNA derived from RT-PCR amplified mRNA. Hydrolysis of the probes by 5'-3' endonuclease activity of Taq DNA polymerase causes separation of reporter and quencher dyes, resulting in increased fluorescence of reporter dye, which was quenched by FRET, which is then detected. 5'-FAM and 3'-TAMRA labeled probes were used.

L29 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:591364 HCAPLUS
DOCUMENT NUMBER: 139:144930
TITLE: Nucleotide sequence determination by single base extension with fluorescent labeled chain terminator incorporation
INVENTOR(S): Sorge, Joseph A.; Arezi, Bahram; Hogrefe, Holly
PATENT ASSIGNEE(S): Stratagene, USA
SOURCE: PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003062454	A2	20030731	WO 2003-US2117	20030123
WO 2003062454	A3	20040108		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003149257	A1	20030807	US 2002-56598	20020124
US 6803201	B2	20041012		

PRIORITY APPLN. INFO.: US 2002-56598 A 20020124

AB This invention relates to the field of polynucleotide sequence determination, in particular, relates to determine the identity of a single nucleotide in a target polynucleotide sequence, e.g., single nucleotide polymorphism (SNP) anal. The present invention relates to compns. and methods for the detection of nucleotides at predetd. locations on a polynucleotide of interest. The embodiments of the invention include compns. and methods in which a primer extension reaction is designed to extend a single

nucleotide (single base extension, SBE) and the incorporation of a labeled chain terminator is determined by signal transfer. The invention provides a composition for identifying a nucleotide at a predetd. position of a target polynucleotide in a sample, the composition comprising: (a) an oligonucleotide primer comprising a first sequence which hybridizes to the target polynucleotide immediately 3' of the nucleotide, and a second sequence which does not hybridize to the target polynucleotide in the presence of a third sequence; and (b) an oligonucleotide probe comprising the third sequence which hybridizes to the second sequence of the oligonucleotide primer, the oligonucleotide probe labeled with a first member of a pair of interactive labels. Preferably, the first polynucleotide chain terminator of the subject composition is labeled with a second member of the pair of interactive labels. In a preferred embodiment, one member of the pair of interactive labels is a quencher mol. In one embodiment of the invention, the first and second members of the pair of interactive labels interact with each other to generate a signal by fluorescent resonance energy transfer. The invention further provides compns. and kits for performing the subject method of the invention.

L29 ANSWER 9 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:570999 HCAPLUS
DOCUMENT NUMBER: 139:112712
TITLE: Heteroconfigurational polynucleotide and their use in genetic hybridization techniques
INVENTOR(S): Greenfield, I. Lawrence; Matysiak, Stefan M.; Schroeder, Benjamin V.; Vinayak, Ravi S.
PATENT ASSIGNEE(S): Applera Corporation, USA
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003059929	A1	20030724	WO 2002-US41085	20021223
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003198980	A1	20031023	US 2002-328307	20021223
EP 1465913	A1	20041013	EP 2002-799282	20021223
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				

PRIORITY APPLN. INFO.: US 2001-343519P P 20011221
WO 2002-US41085 W 20021223

OTHER SOURCE(S): MARPAT 139:112712

AB One shortcoming of existing DNA hybridization assays is that cross-hybridization between probes and unintended target sequences or even between different probes can interfere with assay performance. Accordingly, improvements are need to avoid such cross-hybridization while maintaining good assay performance. Thus, methods, compns. and kits are disclosed that utilize heteroconfigurational polynucleotide comprising a

D-form polynucleotide sequence portion and an L-form polynucleotide sequence portion that is covalently linked to the D-form polynucleotide sequence portion. Synthesis of heteroconfigurational oligonucleotides is achieved on a standard ABI 394 DNA/RNA synthesizer using standard DNA amidates at positions 1-4 and L-DNA amidites at positions 5-8. The resulting probes exhibited specific hybridization to complementary L-DNA and related probes.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 10 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:545711 HCAPLUS
DOCUMENT NUMBER: 139:96320
TITLE: Polymorphism in ptsI gene of Group A Streptococcus and detection of Group A Streptococcus by PCR and FRET
INVENTOR(S): Uhl, James R.; Cockerill, Franklin R.
PATENT ASSIGNEE(S): Mayo Foundation for Medical Education and Research, USA
SOURCE: U.S., 35 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6593093	B1	20030715	US 2002-81923	20020220
EP 1338656	A1	20030827	EP 2003-3576	20030217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2004014118	A1	20040122	US 2003-465205	20030619
PRIORITY APPLN. INFO.:			US 2002-81923 A	20020220

AB The invention provides methods to detect Group A Streptococcus (GAS) in biol. samples using real-time PCR and FRET. Primers and probes for the detection of GAS are provided by the invention. To determine the natural sequence variation in the ptsI gene, the DNA sequence was determined for 11 isolates of group A streptococcus. The ptsI target sequence between base pairs 170 and 1543 was found to be mostly conserved among isolates of group A streptococcus. Most of the polymorphisms found were silent mutations in the third base pair of the codon.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:228640 HCAPLUS
DOCUMENT NUMBER: 139:113216
TITLE: Hybridization kinetics and thermodynamics of molecular beacons
AUTHOR(S): Tsourkas, Andrew; Behlke, Mark A.; Rose, Scott D.; Bao, Gang
CORPORATE SOURCE: Department of Biomedical Engineering, Georgia Institute of Technology and Emory University, Atlanta, GA, 30332, USA
SOURCE: Nucleic Acids Research (2003), 31(4), 1319-1330
CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Mol. beacons are increasingly being used in many applications involving nucleic acid detection and quantification. The stem-loop structure of mol. beacons provides a competing reaction for probe-target hybridization that serves to increase probe specificity, which is particularly useful when single-base discrimination is desired. To fully realize the potential of mol. beacons, it is necessary to optimize their structure. Here we report a systematic study of the thermodn. and kinetic parameters that describe the mol. beacon structure-function relationship. Both probe and stem lengths are shown to have a significant impact on the binding specificity and hybridization kinetic rates of mol. beacons. Specifically, mol. beacons with longer stem lengths have an improved ability to discriminate between targets over a broader range of temps. However, this is accompanied by a decrease in the rate of mol. beacon-target hybridization. Mol. beacons with longer probe lengths tend to have lower dissociation consts., increased kinetic rate consts., and decreased specificity. Mol. beacons with very short stems have a lower signal-to-background ratio than mol. beacons with longer stems. These features have significant implications for the design of mol. beacons for various applications.

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:840962 HCAPLUS
DOCUMENT NUMBER: 139:145981
TITLE: Efficiencies of fluorescence resonance energy transfer and contact-mediated quenching in oligonucleotide **probes**
AUTHOR(S): Marras, Salvatore A. E.; Kramer, Fred Russell; Tyagi, Sanjay
CORPORATE SOURCE: Public Health Research Institute, Newark, NJ, 07103, USA
SOURCE: Nucleic Acids Research (2002), 30(21), e122/1-e122/8
CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An important consideration in the design of oligonucleotide probes for homogeneous hybridization assays is the efficiency of energy transfer between the fluorophore and quencher used to label the probes. We have determined the efficiency of energy transfer for a large number of combinations of commonly used fluorophores and quenchers. We have also measured the quenching effect of nucleotides on the fluorescence of each fluorophore. Quenching efficiencies were measured for both the resonance energy transfer and the static modes of quenching. We found that, in addition to their photochem. characteristics, the tendency of the fluorophore and the quencher to bind to each other has a strong influence on quenching efficiency. The availability of these measurements should facilitate the design of oligonucleotide probes that contain interactive fluorophores and quenchers, including competitive hybridization probes, adjacent probes, TaqMan probes and mol. beacons.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:826597 HCAPLUS
DOCUMENT NUMBER: 138:181561
TITLE: A new fluorescent quantitative polymerase chain reaction technique

AUTHOR(S): Wang, Shengqi; Wang, Xiaohong; Chen, Suhong; Wei, Guan
CORPORATE SOURCE: Beijing Institute of Radiation Medicine, Beijing, 100850, Peop. Rep. China
SOURCE: Analytical Biochemistry (2002), 309(2), 206-211
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Elsevier Science
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To perform real-time detection of specific genes, a new complex probe has been designed and synthesized. Based on fluorescence resonance energy transfer (FRET), this complex probe is composed of a long-fluorescent reporter probe and a short-quenching probe. The 5' end of the fluorescent probe is connected to a fluorescein mol., and its 3' end is linked to an extending blocking mol. The 3' end of the quenching probe is connected to a quenching mol.-p-methyl red (Dabcyl). The quenching probe is complementary to the 5' end of the fluorescent probe. When there is no template, the two probes combine to form a complex probe and therefore no fluorescence is produced; when there are templates, the fluorescent probe hybridizes with the templates first, and the fluorescence is not quenched. The fluorescence intensity produced is in direct proportion to the template quantity. In accordance with the principles of reaction of the complex probe, we have studied the probe's FRET nature and the factors that affect it, including the quenching probe and amplified fragment length, the proper proportion of the fluorescent probe to the quenching probe, and the magnesium ion concentration Exptl. results showed that the quenching probe and its amplified fragment length had an obvious impact on the function of the complex probe. The quenching probe used in the present experiment is up to 21 nucleotides long, with an amplified fragment of 127 bp. The most preferable reaction system is obtained when the proportion of the fluorescent probe to the quenching probe is 1:1, and the concentration of magnesium ions is 3 mmol/L. The complex probe is easy to synthesize. The quenching is thorough with good accuracy and specificity. The sensitivity reaches 102 copies with a very large dynamic quantitation range. Accurate quantitation can be achieved with samples detected within 102-109 copies. The complex probe method can be used to detect virus infection levels, transgenic copy quantities, single nucleotide polymorphisms, etc.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 14 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:814430 HCAPLUS
DOCUMENT NUMBER: 137:334893
TITLE: Methods and sensors for luminescent and optoelectronic detection and analysis of polynucleotides
INVENTOR(S): Cha, Jennifer N.; Morse, Daniel E.; Stucky, Galen D.
PATENT ASSIGNEE(S): The Regents of the University of California, USA
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002084271	A2	20021024	WO 2002-US12176	20020416
WO 2002084271	A3	20021212		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: US 2001-836579 A 20010416
AB Methods, compns. and articles of manufacture for assaying a sample for a target polynucleotide are provided. A sample suspected of containing the target polynucleotide is contacted with a single-stranded sensor polynucleotide complementary to the target polynucleotide and an agent that allows the sensor polynucleotide itself, when present in single-stranded form, to fluoresce upon excitation. The sensor polynucleotide is optionally conjugated to a substrate, which may be an optoelectronic sensing device, and can be micro- or nanoaddressable. A chromophore may be used to adsorb energy from the excited sensor polynucleotide and emit light. The methods can be used in multiplex form. Sensing devices incorporating the sensor polynucleotide and optionally the chromophore are also provided. Kits comprising reagents for performing such methods are also provided.

L29 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:595060 HCAPLUS
DOCUMENT NUMBER: 137:137255
TITLE: Detection of Bordetella
INVENTOR(S): Cockerill, Franklin; Patel, Robin; Sloan, Lynne
PATENT ASSIGNEE(S): Mayo Foundation for Medical Education and Research, USA
SOURCE: PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002061141	A1	20020808	WO 2002-US2896	20020131
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003165866	A1	20030904	US 2002-62875	20020131

PRIORITY APPLN. INFO.: US 2001-265534P P 20010131
AB The invention provides methods to detect Bordetella pertussis and/or Bordetella parapertussis in a biol. sample. Primers and probes for the differential detection of B. pertussis and B. parapertussis are provided by the invention. Articles of manufacture containing such primers and probes for detecting B. pertussis and/or B. parapertussis are further provided by the invention.
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 16 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:504958 HCAPLUS
DOCUMENT NUMBER: 137:74395
TITLE: Oligonucleotide **probes** and primers for detecting pathogenic microorganism
INVENTOR(S): Shimada, Masamitsu; Hino, Fumitsugu; Kato, Ikunoshin
PATENT ASSIGNEE(S): Takara Shuzo Co., Ltd., Japan
SOURCE: PCT Int. Appl., 106 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002052043	A1	20020704	WO 2001-JP11422	20011226
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1347060	A1	20030924	EP 2001-272324	20011226
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2004185455	A1	20040923	US 2003-451882	20030626
PRIORITY APPLN. INFO.:			JP 2000-396222 A	20001226
			JP 2000-396321 A	20001226
			JP 2001-199552 A	20010629
			JP 2001-278920 A	20010913
			WO 2001-JP11422 W	20011226

AB A method and kits containing oligonucleotide probes and primers for detecting pathogenic microorganisms. The probes and primers target IS6110 gene of Mycobacterium tuberculosis, Neisseria gonorrhoeae cppB gene, Chlamydia trachomatis cryptic plasmid pLGV440, and hepatitis C virus (HCV) 5'-UTR. The probes may be labeled with a fluorophore and quencher for FRET, chromophore, enzyme, biotin, gold colloid, and radioisotope. The kit contains DNA polymerase with strand displacement capability, RNaseH, deoxyribonucleotide triphosphates. Bca DNA polymerase lacking 5'-3' exonuclease from Bacillus caldotenax and RNaseH from Pyrococcus or Archaeoglobus may be used preferably. Microtiter plate, beads, magnetic beads, membrane, or glass are used as substrate for capturing amplified fragments. Chimeric oligonucleotide primers may be used for nucleic acid amplification. Use of FITC or TAMRA labeled probes are described.
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:482836 HCAPLUS
DOCUMENT NUMBER: 137:42564
TITLE: Real-time RT-PCR and FRET-based simultaneous detection for mRNA of multiple protein isoforms
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002181818	A2	20020626	JP 2000-381621	20001215

PRIORITY APPLN. INFO.: JP 2000-381621 20001215

AB A method and kit for simultaneously detecting mRNA of multiple protein isoforms, which comprises an oligonucleotide probes, are disclosed. Probes are labeled with a fluorophore and a quencher, so that DNA polymerase 5'-3' exonuclease hydrolysis of the reporter causes increase in fluorescence that was suppressed by FRET (Fluorescence Resonance Energy Transfer). Detection of various mRNA species for ABC transporter isoforms by the real-time one step RT-PCR method is described.

L29 ANSWER 18 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:457531 HCAPLUS
DOCUMENT NUMBER: 137:29007
TITLE: Real-time RT-PCR and FRET-based assay for human organic anion and cation transporters using **probes** and primers
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002171991	A2	20020618	JP 2000-375596	20001211

PRIORITY APPLN. INFO.: JP 2000-375596 20001211

AB A method and kit for assaying human organic anion and cation transporters, which comprises an oligonucleotide probe hybridizable with a specific region of genes encoding various human anion and cation transporters (SLC22A1, SLC22A2, SLC22A3, SLC22A5, SLC22A6, OATP2) and specific primer pairs; are disclosed. Probes are labeled with a fluorophore and a quencher, so that Taq polymerase 5'-3' endonuclease hydrolysis of the reporter causes increase in fluorescence that was suppressed by FRET (Fluorescence Resonance Energy Transfer). Probes labeled with FAM and TAMRA, and primer sets were used to detect expression of anion and cation transporter genes in various tissues.

L29 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:377658 HCAPLUS
DOCUMENT NUMBER: 136:397858
TITLE: Real-time RT-PCR quantitative assay for detection of enzymes associated with phase I drug metabolism analysis
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 36 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002142780	A2	20020521	JP 2001-257338	20010828

PRIORITY APPLN. INFO.: JP 2000-267163 A 20000904

AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of the enzymes, are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:284466 HCAPLUS
DOCUMENT NUMBER: 136:321041
TITLE: Real-time RT-PCR quantitative assay for ATP-binding cassette
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 36 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002112775	A2	20020416	JP 2000-303404	20001003

PRIORITY APPLN. INFO.: JP 2000-303404 20001003

AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of ATP-binding cassette, are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 21 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:228124 HCAPLUS
DOCUMENT NUMBER: 136:275355
TITLE: Real-time RT-PCR quantitative assay for sulfotransferase
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002085067	A2	20020326	JP 2000-272229	20000907

PRIORITY APPLN. INFO.: JP 2000-272229 20000907

AB A method and reagent kit containing probe and primer pairs for real-time

RT-PCR quantification of sulfotransferase, are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:228123 HCAPLUS
DOCUMENT NUMBER: 136:275354
TITLE: Real-time RT-PCR quantitative assay for UDP-glucuronosyltransferase
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002085066	A2	20020326	JP 2000-272228	20000907

PRIORITY APPLN. INFO.: JP 2000-272228 20000907
AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of UDP-glucuronosyltransferase, are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:148567 HCAPLUS
DOCUMENT NUMBER: 136:212762
TITLE: Real-time RT-PCR quantitative assay for rhodanese
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002058482	A2	20020226	JP 2000-245950	20000814

PRIORITY APPLN. INFO.: JP 2000-245950 20000814
AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of rhodanese (thiosulfate sulfur transferase), are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 24 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:148566 HCAPLUS
DOCUMENT NUMBER: 136:196182
TITLE: Real-time RT-PCR quantitative assay for methyltransferase

INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002058481	A2	20020226	JP 2000-245949	20000814

PRIORITY APPLN. INFO.: JP 2000-245949 20000814

AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of methyltransferase, are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:147344 HCAPLUS
DOCUMENT NUMBER: 136:196181
TITLE: Real-time RT-PCR quantitative assay for bile acid CoA:amino acid:N-acyltransferase (BAAT)
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Ohtsuka Pharmaceutical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002058480	A2	20020226	JP 2000-245948	20000814

PRIORITY APPLN. INFO.: JP 2000-245948 20000814

AB A method and reagent kit containing probe and primer pairs for real-time RT-PCR quantification of bile acid CoA:amino acid:N-acyltransferase (BAAT), are disclosed. The probe is labeled with a pair of reporter chromophore and a quencher, which cause fluorescence resonance energy transfer (FRET). Use of a probe labeled at 5' end with FAM and at 3' end with TAMRA is described.

L29 ANSWER 26 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:31696 HCAPLUS
DOCUMENT NUMBER: 136:80840
TITLE: Polynucleotide sequence assay using **probe** pairs
INVENTOR(S): Bi, Wanli; Livak, Kenneth J.; Bloch, Will
PATENT ASSIGNEE(S): PE Corporation (NY), USA; Applera Corp.
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002002823	A2	20020110	WO 2001-US21209	20010703
WO 2002002823	A3	20030828		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002150904	A1	20021017	US 2001-898323	20010703
US 6511810	B2	20030128		
EP 1358350	A2	20031105	EP 2001-950861	20010703
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004507230	T2	20040311	JP 2002-507065	20010703
US 2004005585	A1	20040108	US 2003-351955	20030127
PRIORITY APPLN. INFO.:			US 2000-216514P	P 20000703
			US 2001-898323	A3 20010703
			WO 2001-US21209	W 20010703

AB Disclosed are methods for detecting or quantifying one or more target polynucleotide sequences in a sample. In one aspect, a sample is contacted with first and second probe pair that are capable of hybridizing to a selected target sequence and a corresponding complementary sequence, resp. Probe cleavage and ligation results in the formation of ligation products which can be generated in an exponential fashion when the target sequence and/or complement are present in the sample. The ends of probe pair are terminated with either nucleotide 5' hydroxyl group or nucleotide 3' phosphate group. In another embodiment, a single probe pair can be used to form ligation product in a linear fashion from a complementary template. Reagents and kits are also disclosed.

L29 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:886524 HCAPLUS
DOCUMENT NUMBER: 136:32633
TITLE: Real-time RT-PCR and FRET-based method of detecting and quantifying human cytochrome P450 isoform expression using **probes** and primers
INVENTOR(S): Nishimura, Masuhiro; Yaguchi, Hiroshi; Naito, Shinsaku; Hiraoka, Isao
PATENT ASSIGNEE(S): Otsuka Pharmaceutical Factory, Inc., Japan
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001092538	A1	20011206	WO 2001-JP4544	20010530
W: CN, JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1291427	A1	20030312	EP 2001-934418	20010530
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, FI, CY, TR
US 2003124601 A1 20030703 US 2002-296995 20021202
PRIORITY APPLN. INFO.: JP 2000-164214 A 20000601
WO 2001-JP4544 W 20010530

AB A method and kit for detecting and quantifying expression of human cytochrome P 450 isoforms, which comprises an oligonucleotide probe hybridizable with a specific domain of a gene encoding each human P 450 cytochrome species (for example, the 616-641 domain of CYP1A1 gene) and specific primer pairs; are disclosed. Probes are labeled with a fluorophore and a quencher, so that Taq polymerase 5'-3' endonuclease hydrolysis of the reporter causes increase in fluorescence that was suppressed by FRET (Fluorescence Resonance Energy Transfer). Probes labeled with FAM and TAMRA, and primer sets were used to detect expression of cytochrome P 450 genes in various tissues.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:651626 HCAPLUS
DOCUMENT NUMBER: 136:211409
TITLE: Analysis of single nucleotide polymorphisms with solid phase invasive cleavage reactions
AUTHOR(S): Stevens, Priscilla Wilkins; Hall, Jeff G.; Lyamichev, Victor; Neri, Bruce P.; Lu, Manchun; Wang, Liman; Smith, Lloyd M.; Kelso, David M.
CORPORATE SOURCE: Department of Biomedical Engineering, Robert R. McCormick School of Engineering and Applied Science, Northwestern University, Evanston, IL, 60208-3107, USA
SOURCE: Nucleic Acids Research (2001), 29(16), e77/1-e77/8
CODEN: NARHAD; ISSN: 0305-1048
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Using microparticles as the capture surface and fluorescence resonance energy transfer as the detection technol., we have demonstrated the feasibility of performing the invasive cleavage reaction on a solid phase. An effective tool for many genomic applications, the solution phase invasive cleavage assay is a signal, amplification method capable of distinguishing nucleic acids that differ by only a single base mutation. The method positions two overlapping oligonucleotides, the probe and upstream oligonucleotides, on the target nucleic acid to create a complex recognized and cleaved by a structure-specific 5'-nuclease. For microarray and other multiplex applications, however, the method must be adapted to a solid phase platform. Effective cleavage of the probe oligonucleotide occurred when either of the two required overlapping oligonucleotides was configured as the particle-bound reagent and also when both oligonucleotides were attached to the solid phase. Positioning probe oligonucleotides away from the particle surface via long tethers improved both the signal and the reaction rates. The particle-based invasive cleavage reaction was capable of distinguishing the ApoE Cys158 and Arg158 alleles at target concns. as low as 100 amol/assay (0.5 pM).

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L29 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:592662 HCAPLUS
DOCUMENT NUMBER: 136:227417
TITLE: Use of dark-quenched FRET **probes** in real-time PCR
AUTHOR(S): Chou, Quin; Gregory, Sara; Mandyam, Rangu; Brotski,

Chris; Cabradilla, Cy.
CORPORATE SOURCE: BioSource International, Inc., Camarillo, CA, 93012, USA
SOURCE: American Biotechnology Laboratory (2001), 19(8), 34
CODEN: ABLAEY; ISSN: 0749-3223
PUBLISHER: International Scientific Communications, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB FRET (fluorescence resonance energy transfer) probes are random-coiled oligonucleotides containing a reporter at the 5' end and a quencher at the 3' end. Quenching of the FRET probe is achieved by spectral overlap. The use of Black Hole Quencher (BHQ)-labeled FRET probes in real-time polymerase chain reaction (PCR) was evaluated. For S/N measurement, each FRET probe was formulated with a 5' a reporter (FAM) and a 3' quencher (TAMRA, DABCYL, BHQ 1, or BHQ 2). FRET probes were digested with DNase at room temperature for 1 h, and the fluorescence intensities were measured using the LS-50B PCR detection system. The 5'-FAM FRET probe with BHQ 1 at the 3'-end gave the best S/N among the different quenchers evaluated, and TAMRA was the least effective quencher. BHQ-labeled FRET probes could reliably detect target as low as 100 copies, and provide higher sensitivity than TAMRA-labeled probes. They also worked well even under suboptimal PCR conditions.
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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     (FILE 'HOME' ENTERED AT 09:25:37 ON 18 NOV 2004)

     FILE 'HCAPLUS' ENTERED AT 09:25:44 ON 18 NOV 2004
                E COOK R/AU
L1           141 S E3 OR E26-27
L2             1 S L1 AND PROBE#
L3             1 S FLUORES? AND L1
L4             1 S ENERGY TRANSFER AND L1
                 SELECT RN L4 1

     FILE 'REGISTRY' ENTERED AT 09:28:38 ON 18 NOV 2004
L5             5 S E1-5
                 E FLUOROPHOR/CN

     FILE 'CAPLUS' ENTERED AT 09:30:55 ON 18 NOV 2004

     FILE 'HCAPLUS' ENTERED AT 09:30:57 ON 18 NOV 2004
                E ENERGY TRANSFER/CT
                E E3+AKK
                E E3+LL
                E E3+ALL
L6             0 S ENERTY TRANSFER (L) RESONANCE
L7          3233 S ENERGY TRANSFER (L) RESONANCE
L8          2005 S L7 (L) FLUORES?
L9        532393 S NUCLEIC ACID# OR DNA OR OLIGONUCLEOTID?
L10          708 S L9 AND L8
L11       520288 S NUCLEIC ACID# OR DNA OR OLIGONUCLEOTID?/CT
L12          377 S L11 (L) L8
L13        58374 S QUENCH?
L14           35 S L12 AND L13
L15         8176 S QUENCH?/CT
L16            1 S L15 AND L10
L17        12436 S FLUORESCENCE QUENCHING
L18           75 S L17 AND L11 AND L8
L19           44 S L18 AND PROBE#
L20           30 S L19 NOT L14
L21        10612 S FLUORESCENCE QUENCHING/CT
L22           70 S L21 AND L8 AND L11
L23         1186 S  FLUORESCENCE RESONANCE ENERGY TRANSFER/CT
L24          521 S L23 AND  L11
L25           61 S L24 AND L21
L26          207 S L23 (L) L11
L27           18 S L26 AND L21
L28           37 S L25 AND PROBE#
L29           29 S L28 NOT L27

     FILE 'HCAPLUS' ENTERED AT 09:49:58 ON 18 NOV 2004

=> d cost
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY    SESSION
CONNECT CHARGES                                   2.30      89.37
NETWORK CHARGES                                   0.06       2.64
DISPLAY CHARGES                                 125.43     155.41
                                                -------    -------
FULL ESTIMATED COST                             127.79     247.42

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)    SINCE FILE      TOTAL
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